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Kevin S Dobson
E I du Pont de Nemours & Company
Legal Patents
Wilmington, DE 19898

EXAMINER

CHEUNG, WILLIAM K

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/501,598	Applicant(s) RYMER ET AL.	
	Examiner William K. Cheung	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 6/6/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,9-12,14-16 and 18-57 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,9-12,14-16 and 18-57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>053006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Request for Continued Examination

1. The request filed on May 30, 2006 for a Request for Continued Examination (RCE) under 37 CFR 1.53(d) based on parent Application No. 10/501,598 is acceptable and a RCE has been established. An action on the RCE follows.
2. In view of amendment filed May 30, 2006, claims 3-8, 13, 17 have been cancelled, and new claims 24-57 have been added. Claims 1, 2, 9-12, 14-16, 18-57 are pending.
3. In view of the reasons filed May 30, 2006 and the terminal disclaimer filed June 6, 2006, the rejection of Claim 1, provisionally under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 21 of copending Application No. 10/501,491, is withdrawn.
4. In view of the reasons filed May 30, 2006 and the terminal disclaimer filed June 6, 2006, the rejection of Claim 14, provisionally under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/501,491, is withdrawn.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 2, 24, 31-34, 40-50, 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutweiler (US Patent 5,573,842) in view of Dauvergne (FR Patent 2,401,941, Abstract), and Shohi et al. (EP-1036775 A1) for the reasons adequately set forth from paragraph 7 of non-final office action of March 1, 2006.

*The invention of claims 1, 2, 9-10, 41-49, 56 relates to a **process for preparing a low color, polyvinyl butyral sheet** comprising the steps:*

(I) admixing polyvinyl alcohol, butyraldehyde, an acid or mixture of acids, water, and a surfactant;

(II) stabilizing the mixture obtained in step (1) by (a) raising the pH of the mixture to at least pH 10. (b) isolating the polyvinyl butyral resin composition by draining the liquid, and (c) washing the polyvinyl butyral resin composition with neutral pH water;

(III) plasticizing the PVB polyvinyl butyral resin composition with from about 30 to about 50 pph of plasticizer, based on the dry weight of the resin;

(IV) mixing (a) a PVB polyvinyl butyral bleaching compound, and, optionally, (b) an antioxidant and a UV light stabilizer with the polyvinyl butyral resin composition; and

(V) extruding the PVG polyvinyl butyral resin composition at a temperature of from about 175°C to about 225°C to obtain a polyvinyl butyral sheet having a glass transition temperature (T_g) of greater than about 32°C and a YID of less than about 12.

The invention of claims 24, 25, 28, 31, 34, 40, 50, 54 relates to a process for preparing a low color, polyvinyl butyral sheet comprising the steps:

(I) admixing polyvinyl alcohol, butyraldehyde, an acid or mixture of acids, water, and a surfactant which also performs the function of a bleaching compound;

(II) stabilizing the mixture obtained in step (1) by (a) raising the pH of the mixture to at least pH 10, (b) isolating the resin by draining the liquid, and (c) washing the resin with neutral pH water;

(III) plasticizing the polyvinyl butyral resin composition with from about 30 to about 50 pph of plasticizer, based on the dry weight of the polyvinyl butyral resin;

(IV) optionally mixing (a) a polyvinyl butyral bleaching compound and/or (b) an antioxidant and UV light stabilizer, with the polyvinyl butyral resin composition; and

(V) extruding the polyvinyl butyral resin composition temperature of from about 175°C to about 225°C to obtain a polyvinyl butyral sheet having a glass transition temperature (T_g) of greater than about 32°C and a YID of less than about 12.

The invention of claims 11, 12, 26-30, 32, 33, 35-39, 51-53, 55-56 relates to a process for preparing a low color, polyvinyl butyral sheet comprising the steps:

(I) admixing polyvinyl alcohol, butyraldehyde, an acid or mixture of acids, water, and sodium dialkyl sulfosuccinate;

(II) stabilizing the mixture obtained in step (1) by (a) raising the pH of the mixture to at least pH10, (b) isolating the resin by draining the liquid, and (c) washing the resin with neutral pH water;

(III) plasticizing the polyvinyl butyral resin composition with from about 30 to about 50 pph of plasticizer, based on the dry weight of the polyvinyl butyral resin;

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(IV) optionally mixing (a) a polyvinyl butyral bleaching compound and/or (b) an antioxidant and a UV light stabilizer, with the polyvinyl butyral resin composition; and

(V) extruding the polyvinyl butyral resin composition at a temperature of from about 175°C to about 225°C to obtain a polyvinyl butyral sheet having glass transition temperature (T_g) of greater than about 32°C and a YID of less than about 12.

The prior art to Gutweiler relates to a plasticized PVB film comprising a plasticizer, PVB, and an optical brightener in an amount effective to improve the optical properties and reduce the yellowing of the film which is useful as intermediate film in multilayer laminated glass panes (Abstract). Gutweiler's PVB sheet with a yellowness index of less than 2 (column 8, lines 4-5) is made by blending PVB with 20-50 wt% of plasticizer (column 4, line 1) and extruding under temperature of 140-250° C (column 4, line 12). The PVB has a content of vinyl alcohol monomer units of preferably 17-29 wt% (column 3, lines 41-43).

The difference between the invention of claims 1, 2, 24, 31-34, 40-50, 54-56 and Gutweiler et al. is that Gutweiler is silent on the details of PVB synthesis.

Dauvergne teaches a process for preparing PVB comprising adding PVA, acid catalyst, and an emulsifier (i.e. a surfactant) into a reactor with stirring, introducing butyraldehyde gradually, then, after adjusting pH to 9-11, separating the resultant PVB

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from the mixture (Abstract). Although Dauvergne does not mention the wash step after PVB is separated from mixture as required by applicant's claim 1, the prior art to Shohi et al. provides an interlayer film for laminated glass containing PVB resin (Abstract and page 3, [0016]), where the PVB synthesis includes a step of reaction product wash with an excess of water in order to wash out the unreacted n-butyraldehyde and a neutralization of the hydrochloric acid catalyst with the common neutralizer (page 5, [0046]). Motivated by the expectation of success of obtaining a PVB resin with low residual monomers, it would have been obvious to one of ordinary skill in art to incorporate the washing step of Shohi et al. into the PVB preparation procedure of Dauvergne to obtain the PVB synthesis procedure as claimed.

Further, in light of the fact that Dauvergne teaches a detailed method of synthesizing PVB and Shohi et al. teach a similar PVB synthesizing process including a washing step, one having ordinary skill in the art at the time the invention was made would appreciate such teaching and, thus, to incorporate Dauvergne's method in Gutweiler's process of making a similar PVB laminate in combining with the method as taught by Shohi, because Dauvergne further detailed Gutweiler's method of synthesizing PVB and Shohi teaches the benefit of including one extra step of product washing and all three prior arts relate to the same subject matter, i.e. making a PVB laminated glass.

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As to the glass transition temperature of the PVB sheet, as discussed above, given the substantially identity in the plasticized PVB composition between the prior art and the present invention, it is the examiner's position to believe that the prior art composition must inherently possess the same T_g . Since the PTO does not have proper means to conduct experiments, the burden of proof is now shifted to the applicant to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977); *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596, (CCPA 1980).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
9. Claims 14-16, 18-21, 23, 56, 57 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Gutweiler (US Patent 5,573,842).

*The invention of claims 14-16, 18-21, 23, 57 relates to a **plasticized polyvinyl butyral sheet composition** consisting essentially of:*

polyvinylbutyral having a hydroxyl (OH) number of from about 15 to about 25;

a plasticizer or plasticizer mixture present in an amount of from about 30 pph to about 50 pph, based on the dry weight of the PVB polyvinyl butyral resin;

a surfactant; and

optionally including either (i) a PVB polyvinyl butyral bleaching compound, or (ii) an antioxidant and an ultraviolet (UV) light stabilizer, or (iii) both (i) and (ii),

*wherein the sheet has a **yellowness index (YID) color of less than 12**, and
wherein the **surfactant** is the type that performs the function of a **bleaching
compound or the polyvinyl butyral bleaching compound** is present.*

The prior art to Gutweiler relates to a plasticized PVB film comprising a plasticizer, PVB, and an optical brightener in an amount effective to improve the optical properties and reduce the yellowing of the film which is useful as intermediate film in multilayer laminated glass panes (Abstract). Gutweiler's PVB sheet with a yellowness index of less than 2 (column 8, lines 4-5) is made by blending PVB with 20-50 wt% of plasticizer (column 4, line 1) and extruding under temperature of 140-250° C (column 4, line 12). The PVB has a content of vinyl alcohol monomer units of preferably 17-29 wt% (column 3, lines 41-43). Although Gutweiler is silent that the "surfactant employed is the type that performs the function of a bleaching compound or the polyvinyl butyral bleaching compound", applicants must recognize that the claimed invention relates to a plasticized polyvinyl butyral sheet composition and the how the claimed sheet product is bleach is a process-related limitation that has very little weight in the patentability of a product. Applicants must recognize that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product

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was made by a different process.” In re Thorpe, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

10. Claims 9-12, 25, 26-30, 35-39, 51-53, 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gutweiler (US Patent 5,573,842) in view of Dauvergne (FR Patent 2,401,941, Abstract), and Shohi et al. (EP-1036775 A1), and further in view of Degeilh (US 4,696,971) for the reasons adequately set forth from paragraph 8 of the office action of March 1, 2006.

The prior art references to Gutweiler, Dauvergne and Shohi et al. are adequately presented previously in this Office Action and are incorporated herein by reference. All the aforementioned prior art references do not teach use of a specific surfactant or emulsifier in making PVB.

Degeilh’ 971 teaches a process for the preparation of a PVB including using sodium dioctyl sulfosuccinate (DOS), effective as an emulsifier (Abstract). DOS advantageously facilitates the after-treatment of the PVB to separate the product (column 3, lines 19-20). More benefits of using such DOS emulsifier are described at column 3, lines 20-52.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include a surfactant, such as DOS, as taught by

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Degeilh, in Gutweiler's PVB formulation in order to take the advantage of such surfactant disclosed by Degeilh, and thus, to arrive at the instant claims 6-7.

As to claims 9-10, it is noticed that sodium dioctyl sulfosuccinate, i.e. DOSS, is used as an emulsifier by Degeilh in the process of making PVB film (Abstract), which reads on the instant claims 9-10. Even though Degeilh does not specify that DOSS can also be used as a bleach agent, such functionality must be inherently processed by this compound. Finding a new property of the compound and such a discovery does not constitute a new invention. The courts have held that the fact that a characteristic is a necessary feature or result of a prior-art embodiment is enough for inherent anticipation, event if that fact was unknown at the time of the prior invention. *In Toro Co. v. Deere & Co.*, 355 F.3d 1313, 1320, 69 USPQ2d 1584, 1590 (Fed. Cir. 2004);); and *In Atlas Powder Co. v. Ireco, Inc.*, 190 F.3d 1342, 1348-49 (Fed. Cir. 1999).

As to claims 11-12, Gutweiler's process of dissolving or suspending optical brighteners in the plasticizer, mixing the plasticizers and optical brighteners with PVB can be seen at column 2, lines 12-16, which meets the instantly claimed "wet process". Shohi et als' disclosure on page 5, [0047], meets the instantly claimed "dry process".

As to claim 21, Shohi et al. disclose that supplementing the interlayer PVB film for laminated glass with additives is a conventional practice. The additives include

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ultraviolet absorber, light stabilizer, oxidation inhibitor, surfactant, colorant, etc. (page 4, [0033]). The oxidation inhibitor includes phenolic antioxidants, see page 4, [0036].

11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gutweiler (US Patent 5,573,842) in view of Dauvergne (FR Patent 2,401,941), in view of Shohi et al. (EP-1036775 A1), in view of Degeilh (US 4,696,971) as applied to claims 14 and 20 above, and further in view of an online product brochure from Great Lakes Chemical Corporation, www.pa.greatlakes.com, 3rd Edition, October 2001, for the reasons adequately set forth from paragraph 9 of non-final office action of March 1, 2006.

The prior art references to Gutweiler, Dauvergne, Shohi et al. and Degeilh are adequately presented previously in this Office Action and are incorporated herein by reference. The aforementioned prior art references do not teach the instantly claimed antioxidant compound, i.e. 2,2-methylenebis (6-t-butyl-4-methylphenol).

Shohi et al. disclose that an antioxidant, such as phenolic antioxidant, among other additives, is conventionally incorporated in an interlayer film for laminated glass of this kind (page 4, [0033] and [0036]), while the online product brochure from Great Lakes Chemical Co. provides a list of nineteen antioxidants under the phenolic antioxidants category including 2,2'-methylenebis (6-t-butyl-4-methylphenol), which meets the instantly claimed compound. Including a phenolic antioxidant is a common

practice in the art as clearly stated by Shohi et al. and finding a specific product from a chemical company's product brochure is well within the reach of a skilled person in the art. Therefore, it would have been obvious to those skilled in the art to employ such antioxidant in Gutweiler's PVB composition, motivated by a reasonable expectation of successfully obtaining the corresponding interlayer film containing PVB for laminated glass.

Response to Arguments

Applicant's arguments filed May 30, 2006 have been fully considered but they are not persuasive. Applicants argue that the prior art do not teach a bleaching compound, however, applicants fail to recognize that claims as written do not exclude an optical brightener as a bleaching compound.

Regarding applicants' argument that Dauvergne teach using dodecylbenzene sulphonate as an emulsifier, not as a bleaching compound, applicants must recognize that the argued "beaching" function is a property that inherent to the dodecylbenzene sulphonate compound disclosed in Dauvergne. As long as Dauvergne has disclosed its use, the functions that are inherent to the argued dodecylbenzene sulphonate would be inherent to the teachings of Dauvergne. Applicants must recognize that different uses of the same compound is not considered a patentable feature because the prior art Dauvergne has clearly disclosed its uses.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William K. Cheung whose telephone number is (571) 272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



William K. Cheung, Ph.D.

Primary Examiner

June 23, 2006

**WILLIAM K. CHEUNG
PRIMARY EXAMINER**